

REMARKS

Reconsideration and allowance of the present patent application based on the foregoing amendments and following remarks are respectfully requested.

By this Amendment, claims 1, and 3-7 are amended. Support for the amendments to claims 1, and 3-7 may be found throughout the original description of the present patent application (see, Specification: paragraphs [0017]-[0029], and FIGs. 1-3). No new matter has been added. Accordingly, after entry of this Amendment, claims 1-7 will remain pending in the patent application.

In the Office Action dated April 23, 2007, the Examiner rejected claims 1-7 under 35 U.S.C. § 101 as allegedly being directed to a nonstatutory subject matter. The Examiner also rejects claims 1-5 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. The Examiner further rejects claims 1-7 under 35 U.S.C. §103(a) as allegedly being obvious based on Ledger '340 (U.S. Patent 5,365,340) in view of Bevis '363 (U.S. Patent 7,068,363) in view of Chalmers '511 (U.S. Patent 7,095,511). All rejections are respectfully traversed.

I. Rejections Under § 101.

With respect to method claims 1, 6 and 7, it is respectfully submitted that the claimed subject matter is statutory under 35 U.S.C. § 101 as it recites a new and useful process.

Applicants remind the Examiner that MPEP § 2107.02 II. states that “[u]pon initial examination, the examiner should review the specification to determine if there are any statements asserting that the claimed invention is useful for any particular purpose. A complete disclosure should include a statement which identifies a specific and substantial utility for the invention.”

Further, MPEP § 2107.02 II.A. states that “[a] statement of specific and substantial utility should fully and clearly explain why the applicant believes the invention is useful. Such statements will usually explain the purpose of or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the

form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful.”

Moreover, MPEP § 2107.02 III.A. states that “[a]s a matter of Patent Office practice, a specification which contains a disclosure of utility which corresponds in scope to the subject matter sought to be patented must be taken as sufficient to satisfy the utility requirement of §101 for the entire claimed subject matter unless there is a reason for one skilled in the art to question the objective truth of the statement of utility or its scope.” (Underlining emphasis in original.)

With this said, Applicant has provided ample disclosure of a specific and substantial utility for the invention. For example, the written description discloses that a method of monitoring uniformity of STI (Shallow Trench Insulation) is useful “in CMP (chemical Mechanical Polishing) process in fabrication process of semiconductor devices” (See, Specification par. [0002]). The written description further discloses that, “STI process comprises the following steps of: depositing and patterning an oxide layer and a nitride layer on a semiconductor substrate; forming a trench by etching the substrate; forming a thin film on the trench; performing a cleaning process; forming an STI oxide layer; performing a mot etching clearing process to remove impurities in the film and an annealing process for a stability of the film; and performing a CMP process” (See, Specification: par. [0023]).

Consistent with these disclosures, independent claims 1, 6, and 7 is clearly directed, *inter alia*, to: “*measuring a thickness of the insulating layer*”, “*collecting an optical image of the insulating layer*”, and “*identifying defects in the insulating layer*,” which necessarily result in insulating layer thickness data, optical images of the insulating layer, and unique and reproducible indications of the defects locations, all integrated in a library.

Applicant submits that the subject matter of claims 1, 6, and 7, and the recitations contained therein, provide a practical, real world application. That is, artisans of ordinary skill cannot deny that the claimed optical images of the insulating layer, measurements of the thickness of the insulating layer, and identification of defects in the insulating layer are, in and of itself, concrete, tangible, useful results.

It is respectfully submitted that the Examiner's cursory and conclusory statement that "there does not appear to be a tangible result claimed" is insufficient for establishing a *prima facie* case of lack of utility. (See, Office Action: page 2). As discussed above, Applicant's disclosure of utility, which corresponds in scope to the subject matter sought to be patented, *must* be taken as sufficient to satisfy the utility requirement of 35 U.S.C. §101 for the entire claimed subject matter, *unless* there is a reason for one skilled in the art to question the objective truth of the statement of utility or its scope. The Examiner has provided a mere conclusion, an incorrect one at that, and has provided no reasons why one skilled in the art would question the objective truth of the numerous statements of utility provided in the application.

Reconsideration and withdrawal of the rejection of claims 1, 6, and 7 under 35 U.S.C. §101 are respectfully requested. Furthermore, immediate allowance of claims 2-5 is respectfully requested, at least on the virtue of their dependence on claim 1, as well as for their additional recitation.

II. Rejections Under § 112, second paragraph.

The Examiner alleges that the claim phrase "measuring thickness data" is indefinite. Applicant has amended claims 1, 6, and 7 to recite, *inter alia*, "*measuring a thickness of the insulating layer.*" Applicant submits that the amended claim phrase is clearly definite and respectfully requests the immediate withdrawal of the indefiniteness rejection.

III. Rejections Under § 103(a).

As indicated above, amended claims 1, 6, and 7 positively recite, *inter alia*, "*collecting an optical image of the insulating layer*" corresponding to the measured thickness data, "*creating a library*" by matching the measured thickness data and the optical image data, and using the library to "*identify defects in the insulating layer at the plurality of locations.*"

The Examiner erroneously equates the library of claims 1, 6, and 7 of the present invention and the spectral library of Ledger '340 (see, for example, Ledger '340, column 3, lines 15-20; column 5, line 58; column 8, lines 8-9; or claim 19.) The difference between a library of

measured thicknesses and optical images and a library of spectral reflectances is obvious to an average practitioner of spectroscopy and optical measurements.

Furthermore, the claimed usage of the library of present invention for identification of defects in the insulating layer absent from Ledger '340. Neither Bevis '363 nor Chalmers '511, taken individually or in combination, can repair the deficiencies of Ledger '340. Both, Bevis '363 and Chalmers '511 are completely silent on optical image / data thickness libraries or any usage of such.

Consequently, the cited references failed to disclose, either individually or in any conceivable combination, all elements recited in claims 1, 6, and 7. for at least the reasons presented, Applicant submits that claims 1, 6, and 7 are clearly patentable. Furthermore, because claims 2-5 depend from claim 1, claims 2-5 are at least patentable by virtue of dependence as well as for their addition recitations.

IV. Conclusion.

All matters having been addressed and in view of the foregoing, Applicant respectfully requests the entry of this Amendment, the Examiner's reconsideration of this application, and the immediate allowance of all pending claims.

Applicants submits that the entry of this Amendment is proper under 37 C.F.R. §1.116, as the claim changes: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not require any further consideration as the claim changes employ limitations from originally-filed dependent claims that should have already been searched; and (c) places the application in better form for an Appeal, should an Appeal be necessary.

Applicant's representative remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this matter. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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